

Remarks/Arguments:

Claims 1-30 were pending in the application at the time of the Office Action. Claims 2-5 and 18-20 are withdrawn from consideration as directed towards non-elected species of the invention.

Rejections under 35 U.S.C. § 103

Claims 1, 6-17 and 21-30 are rejected under 35 U.S.C. § 103(a) as unpatentable over Blum et al. (4,581,432) in view of Bogdan et al. (6,086,788). As a preliminary observation, it appears that the central point of the rejection is an assertion that Blum suggests, to the person of ordinary skill, using ethylene glycol monobutyl ether in the claimed amounts (along with the other ingredients recited in the claims). The applicant submits that there is no such suggestion to use ethylene glycol monobutyl ether in the recited amounts. The reasons for this assertion will now be discussed in detail.

The Office Action states that "Blum et al. does disclose variation in the amount of ethylene glycol monobutyl ether for purposes of controlling dissolution of catalyst." The applicant submits that this statement is inaccurate. Although Blum discloses two examples where differing amounts of ethylene glycol monobutyl ether are used to dissolve the catalyst, this is not the same as disclosing that varying the amount of ethylene glycol monobutyl ether is useful for any particular purpose, including dissolution of catalyst. There is no explanation regarding why the amounts of glycol ether differ in Examples 3 and 5, nor even an indication that changing from one glycol ether level to the other had any effect at all, and the reader thus derives no teaching or suggestion as to how to vary this parameter, what the results of such variation might be, or even a suggestion to vary it at all. More particularly, and contrary to the examiner's assertion, there is no indication of what effect might be achieved by "controlling catalyst dissolution," even if such controlling occurs.

As far as the reader of Blum can tell, the only criterion for how much ethylene glycol monobutyl ether to use is that it be enough to dissolve the catalyst, and this amount would be expected to differ depending upon the type of catalyst chosen. Indeed, for other catalysts an entirely different catalyst solvent might have been chosen, or none at all (e.g., if a liquid catalyst were used). Blum does not teach that ethylene glycol monobutyl ether is special in any way. However, even if the reader of Blum nonetheless somehow arrived at the idea to vary the amount of ethylene glycol monobutyl ether to control dissolution of catalyst for some

as-yet undefined purpose, there is no evidence that optimization of the amount of ethylene glycol monobutyl ether for this purpose would lead to the claimed amount. Indeed, the only teaching of Blum regarding ethylene glycol monobutyl ether recites levels that fall below the claimed amount. This is not surprising, since there is no reason to expect any connection between the amounts of ethylene glycol monobutyl ether suitable for the completely different purposes of Blum and of the present invention.

The Office Action states that "Accordingly, it would have been obvious ... to have controlled the amount of ethylene glycol monobutyl ether employed in the preparation of Blum et al. for the purpose of controlling catalyst dissolution effects in the preparation formed in order to arrive at the products and processes of applicant's claims with the expectation of success..." The Office Action proposes no specific purpose for "controlling" catalyst dissolution, and it proposes no result by which the success of any such controlling could be measured. Therefore, the assertion of an expectation of any such undefined success is baseless. There can be no success, and therefore no expectation of success, when no goal is identified. Further, there is no indication that the pursuit of any such as-yet undefined success would, as the Office Action asserts, cause one "to arrive at the products and processes of applicant's claims." It would defy logic to assert that optimization of a variable for an undefined purpose will lead to any particular value of that variable, since optimizing for different purposes would be expected to lead to different optimal values. In any case, a *prima facie* case of obviousness would at the least require a suggestion to increase the level of ethylene glycol monobutyl ether beyond that taught by Blum, in order to arrive at the claimed levels. Blum provides no such suggestion, the only criterion appearing to be using "enough" to dissolve the catalyst. But Blum already achieves that with the amounts of ethylene glycol monobutyl ether that he uses. Thus there is no motivation to use other amounts, including the higher amounts presently claimed.

The Office Action cites *In re Aller* to establish that, where the general conditions of the claims are disclosed in the prior art, discovering the optimal or workable ranges involves only routine skill in the art. The Office Action also cites *In re Boesch* to establish the point that discovering the optimum value of a result effective variable involves only routine skill in the art. However, a particular parameter must first be recognized in the prior art as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as

routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977), emphasis added.

A result-effective variable must by definition refer to some specific result against which effectiveness can be measured. With respect to the amount of glycol ether, the Office fails to identify any such result, nor can the applicant find one in Blum, other than presumably "enough" to dissolve the catalyst as noted above. There is no indication that the amount of glycol ether is result effective for any property of relevance to the purposes of Blum's invention, and thus it is not a recognized result effective variable, and its optimization cannot be *prima facie* obvious.

The Office Action further asserts that a *prima facie* case of obviousness has been held to exist where the proportions of a reference are close enough to those of the claims to lead to an expectation of similar properties, citing *Titanium Metals v Banner* and MPEP 2144.05 (which discusses *Titanium Metals*). The applicant submits that this statement is not a completely accurate recounting of the holding of *Titanium Metals*. Rather, as noted in the cited section of the MPEP, *Titanium* supports the proposition that

"Similarly, a *prima facie* case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties." (MPEP 2144.05, emphasis added)

The cases discussed in MPEP 2144.05 (including *Titanium Metals*) relate to situations where an explicitly taught range of a variable is found in the prior art reference. The applicant submits that only by comparison of the claimed range with such an explicitly taught range is it possible for the person of ordinary skill to know whether to expect the claimed range to be "close enough" so as to provide the same properties as that of the prior art. Those "same properties," in order to make one motivated to reach them, must be the properties sought after in the prior art. In the case of Blum, the sought property is merely catalyst dissolution.

A teaching of some specific range in the prior art is a necessary precondition to an assessment of whether the claimed composition is "close enough" to have been essentially taught by that art. However, Blum does not meet that precondition. Blum has no specific teachings as to a suitable range of ethylene glycol monobutyl ether content. Rather, Blum

merely gives two examples where he states that ethylene glycol monobutyl ether is used to dissolve the particular catalyst that he is using (triethylenediamine, a solid catalyst), without any discussion of how he picked those amounts, what difference (if any) might result from varying those amounts, or even whether there is anything special about using ethylene glycol monobutyl ether rather than some other solvent. His only teaching regarding the ethylene glycol monobutyl ether is that it is a solvent for the catalyst, presumably intended to facilitate catalyst handling, and Blum doesn't teach that any particular type of solvent or any particular amount of solvent is to be desired. The reader of Blum merely learns from Blum that he may want to use "enough" of some solvent (not necessarily ethylene glycol monobutyl ether) to facilitate catalyst handling.

Thus Blum in essence teaches only that, when using a solid catalyst, it may help to dissolve it first, presumably for easier handling. In such a case, one would normally use as little solvent as possible, and one would not be led to increase the amount beyond that which is needed to dissolve the catalyst. Since Blum already achieves catalyst dissolution with smaller amounts of ethylene glycol monobutyl ether, one would not be led to use the larger amounts presently claimed.

In sum, Blum does not teach or suggest the claim feature of at least 4 pphp of a blowing agent enhancer as claimed, nor does the Office Action provide a motivation to deviate from Blum's teachings to arrive at such a level. Bogdan does not remedy this deficiency, and thus, for at least this reason, the combination of Blum and Bogdan does not support a *prima facie* case of obviousness.

Double Patenting

Claims 1, 6-17, and 21-30 are rejected on the ground of nonstatutory obviousness-type double patenting over claims 1-20 of U.S. Pat. No. 6,921,779. The applicant will file an appropriate terminal disclaimer when the claims have been found allowable.

Conclusion

For all of the reasons recited above, the applicant submits that all of claims 1, 6-17, and 21-30 are in condition for allowance, and respectfully request reconsideration and early

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notification to that effect. The applicant invites the Examiner to contact their undersigned representative, Michael Leach, by telephone if it appears that a telephonic interview may facilitate prosecution of the application.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Michael Leach", written in a cursive style.

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